State Water Resources Control Board
Division of Drinking Water

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DATE: January 2, 2015

SUBJECT: SYSTEM 1910179 – CITY OF BURBANK 2013 SANITARY SURVEY

1. Introduction

On April 16th, 25th and 26th of 2013, the Division of Drinking Water hereby referred to as the Division, inspected the City of Burbank water system hereby referred to as the City. The inspection was conducted by Mauricio Santos of the Division with Anthony Umphenour and Gary Longwith of the City accompanying him. The last sanitary survey of the City's water system was on March 4th and 5th, 2009.

1.1 Brief Description of the System

The City of Burbank's water system is a community water system that provides water service to the population within its own city limits. The City has eight active groundwater wells, two inactive groundwater wells, 23 potable water storage facilities, five purchased water connections with the Metropolitan Water District of Southern California (MWD), a purchased water connection with the City of Glendale (Glendale) and 17 potable water pump stations.

The City has 12 pressure zones. The produced groundwater from the eight active groundwater wells is treated by air stripping and liquid phase granular activated carbon (LPGAC) in order to remove volatile organic chemicals (VOCs), primarily trichloroethylene (TCE), tetrachloroethylene (PCE), and 1,2,3-trichloropropane (1,2,3-TCP). The current TCE and PCE levels exceed the Division's regulated maximum contaminant levels (MCLs). The treated water is then injected with both chlorine and ammonia in order to produce chloramines for disinfection. The City then blends this water with MWD water in order to reduce the nitrate and chromium-6 levels present in the water. Afterward, the water is pumped into the distribution system where it is routed through different reservoirs, tanks and booster stations in order to meet customer demand.

2. Sources of Water

2.1 Groundwater

The City has eight wells on active status in their system. These wells feed into the Burbank Operating Unit (BOU) where the water is treated for TCE, PCE and 1,2,3-TCP among other lower concentration VOC's. After the water flows from the BOU, it is blended with MWD water to manage nitrate and chromium-6 concentrations. Table 2.a summarizes the City's active wells and their capacities in million gallons per day (MGD) and in gallons per minute (gpm).

Table 2.a – The City of Burbank's Active Wells

Well Name	PS Code	Status	Capacity (MGD)	Capacity (gpm)
VO-1	1910179-023	Active	2.16	1,500
VO-2	1910179-024	Active	2.30	1,600
VO-3	1910179-025	Active	2.16	1,500
VO-4	1910179-026	Active	2.45	1,700
VO-5	1910179-027	Active	2.74	1,900
VO-6	1910179-028	Active	3.31	2,300
VO-7	1910179-029	Active	2.74	1,900
VO-8	1910179-004	Active	2.16	1,500

Wells VO-1 to VO-4

Wells VO-1 through VO-4 are located east of the BOU treatment plant. They are located in underground vaults behind the retail stores that compose the Empire Shopping Center, adjacent hotels and adjacent business park. In order to gain access to the wells, operators open two hatches. One hatch is used to descend into the vault via a ladder. The other hatch is used to fan air down into the vault to prevent the buildup of gases. It is also used as the maintenance hatch to extract the pump if necessary. When operators descend into the vault, they must employ a gas detector that warns them when gas levels are too high in the vault. When the gas detector alarm is triggered, operators must vacate the vault immediately. The well vaults are difficult to access without the proper equipment which promotes good site security and prevents unauthorized access. The wells were constructed in 1993 and drilled to depths varying from 345 to 370 feet. The casings are stainless steel with a diameter of 18 inches. The VO wells are equipped with 14 TLC Bowl-8 Stage water lubricated submersible pumps. There are check valves present on each well but the City does not have pump-to-waste capabilities at each well vault. The City must pump water from the VO wells to the BOU and pump-to-waste at the plant. There are operational plans available at the City that allows them to pump a well to waste with the most efficiency. The VO wells are each equipped with an impressed-current cathodic protection system. The system is cooled by oil which is housed in a rectifier located adjacent to the wellhead. Each well has an above ground cabinet located adjacent to the vault entrance. The cabinets house the sampling port, packer pressure gauge and fill line, vault drainage line, casing vent, vault vent and flow gauge. The sampling port line has two valves. One valve is used to take the sample. The other valve controls the flow in order to take a proper sample from the sampling valve. The Burbank VO wells are unique in that the water being released from the control valve is returned to the well casing via the casing vent. The control valve water is collected by a funnel that connects to the casing vent. There is a drainage line that runs down to the vault. Operators can attach a pump to the line in the cabinet and drain the vault via this line should the vault accumulate water. The vault is graded such that water drains to a common point and the drainage line is positioned to draw water from this point. The VO wells also have packers installed in the casing to isolate certain levels of the aquifer. The packer has a pressure gauge in the cabinet and once the pressure drops to 100 pounds per square inch (psi), the operators recharge the line to 150 psi with nitrogen gas.

Overall the wells were in working order, well maintained and equipped with the proper well appurtenances.

General Comments for Wells VO-1 to VO-7

The City should put screening on the funnels to keep foreign debris from entering the casings via the return lines. The City should also develop a plan that allows each well to pump-to-waste. Currently, one VO well cannot be pumped-to-waste without wasting water from the other VO wells.

Well Deficiencies VO-1 to VO-4

VO-1

The Division found a fitting on the wellhead that was loose. This fitting should be secured in place to keep foreign debris from entering the well casing.

VO-2

A fitting that is guiding a cable through the wellhead was loose and covered with aluminum foil for flexibility. The fitting should fit snuggly and foil should not be used as sealing device as it can tear or be punctured and create a pathway for debris to enter the casing.

VO-3

A fitting that is guiding a cable through the wellhead was loose and covered with aluminum foil for flexibility. The fitting should fit snuggly and foil should not be used as it can tear or be punctured and create a pathway for debris to enter the casing. An internally threaded valve was found on the discharge. If this valve does not serve any particular purpose, the City should remove it. The Division also noticed that guiding bolts on the wellhead were not properly fastened down. The City should tighten the lug nuts on the wellhead properly.

VO-4

The Division observed water had accumulated in the vault. The operators informed the Division that the water was caused by seepage from a nearby carwash. The City should investigate the cause and mitigate it accordingly.

Caps and fittings on the wellhead were covered with aluminum foil as protection. The City should replace these caps and fittings so that aluminum foil will not be required as a method of protection.

Threaded fittings were present on several of the well lines. There should not be any threaded lines connected to the well discharge lines. The City should remove these fittings, file the threads down or fit them with anti-siphon fittings. A coupling connection was present as well.

A "No Parking" sign is present on the sampling station cabinet above the well, but a vehicle was parked in the stall adjacent to the cabinet which made access to the cabinet difficult. The City should speak with property owners about cross-hatching the parking space or installing a post to keep vehicles from blocking access to the sampling station.

Wells VO-5 to VO-7

Wells VO-5 through VO-7 are located in underground vaults located beneath the westbound lanes of Vanowen Street to the north of the BOU. The wells are identical in design to the other VO wells. In

order to access these wells, operators must direct vehicle traffic around the vaults using parking cones and vehicles to protect the operators.

Overall the wells were in working order, well maintained and equipped with the proper appurtenances.

Well Deficiencies VO-5 to VO-7

VO-5

There was oil residue from the cathodic protection system on the caps and fittings on the wellhead. A layer of dust was present as well. The City should clean the surface of the wellhead and mitigate the oil residue. A cap on the wellhead was constructed of aluminum foil. This does not adequately protect the well casing. A permanent cap should be installed in lieu of an aluminum foil cap. At the sampling point, there were pieces of loose rust in the sampling return line. The pieces of rust should be cleared from the return line.

VO-6

There was condensation present in vault. At the sampling cabinet, the Division observed that there was paint clogging the vault vent screen. This may be the cause of the condensation buildup in the well vault below. The vault vent should be cleared of obstructions. There was also a threaded tap on the discharge line that should be removed, have its threads shaved down or be equipped with an anti-siphon device. Oil buildup on the wellhead should be cleaned off and the cause investigated.

The VO-6 vault collects drainage water in a different area of the vault compared to the other VO wells. The drainage pipe maintains its clearance of the ground with some wood wedges that have been placed under the pipe opening. The City should make the proper modifications to the pipe so that wedges of wood are not needed to maintain ground clearance.

VO-7

Some water was present in the vault and it did not appear to be condensation. There was also rust dust and oil residue present from the cathodic protection system. The City should clean the dust and oil residue and investigate the cause. Lug nuts on well head should also be tightened. An old wiring connection was present on the wellhead. The City should remove the old wire connection and cap it in order to eliminate the possibility of debris entering the well casing via this connection. The Division observed a portion of the discharge piping that was supported by a temporary stand. This temporary stand should be replaced with a permanent stand or support. The collection funnel in the sampling cabinet is corroding. The City should replace the funnel.

Well VO-8

Well VO-8 is located in the City of Burbank's Fire Training Center located adjacently to the northeast of the BOU. The site is fenced and gated to limit access to the site. The well existed prior to the construction of the BOU. Prior to the BOU it was designated as Well 10. When the BOU was constructed, the well was adapted and rerouted to discharge water to the BOU for treatment. Well VO-8 is the only well of the BOU wells that is above ground. The well is equipped with a vertical deep well turbine pump and is electrically powered and oil lubricated. The well is controlled remotely from the BOU operations center. The wellhead is enclosed in a shed that was constructed around

the well. An operator must have keys to open the shed. Pump-to-waste capabilities are not available at the well site. The City pumps to waste at the BOU if necessary as stated earlier. Overall the well was in working order and well maintained.

Inactive Wells
The City has expressed an interest in bringing Well 7 and 15 back online on standby status in the future. This would serve as an additional source of water should an emergency occur and MWD be unable to provide water to the City. The City was advised that a permit amendment application with supporting documentation and water quality testing would be required to bring the wells back online and into standby status. Table 2.b summarizes the City's destroyed, abandoned and inactive wells.

While conducting the sanitary survey, the Division observed the status of the City's inactive, abandoned and destroyed wells. Well 06-A is physically present and is listed as inactive in the Division's records but not in the City's records. Some wells were physically disconnected from the distribution system but remain in place. The City takes water level readings from these wells that remain in place. The Division recommends the City work with the local basin to determine the need for these readings. An inactive well left in place may serve as a conduit for contaminated water to move from one aquifer to another and thus contaminating an otherwise clean source of water. Table 2.b lists the City's inactive wells.

Table 2.b – The City of Burbank's destroyed, abandoned and inactive wells.

Connection Name	PS Code	Status
Well 06 - A	1910179-001	Inactive
Well 07	1910179-002	Inactive
Well 09	1910179-003	Destroyed
Well 11 - A	1910179-005	Inactive
Well 12	1910179-006	Inactive/Monitoring Site
Well 13 - A	1910179-007	Inactive/Monitoring Site
Well 14 - A	1910179-008	Abandoned/Destroyed
Well 15	1910179-009	Inactive
Well 17	1910179-010	Abandoned/Destroyed
Well 18	1910179-011	Destroyed

2.2 Interconnections with Other Systems

The City receives the majority of its water from MWD. The City has five interconnections throughout the service area that connect directly with the distribution system. The City also uses one of the MWD connections to blend water at the Valley Pumping Plant.

Table 2.c - A list of the City's interconnections with other water systems.

Connection Name	PS Code	Status	Capacity (MGD)	Capacity (gpm)
MWD B-1	1910179-066	Active	19.44	13,500
MWD B-2	1910179-067	Active	9.65	6,700
MWD B-3	1910179-068	Active	6.48	4,500
MWD B-4	1910179-069	Active	12.96	9,000
MWD B-5	1910179-070	Active	25.92	18,000
City of Glendale		Emergency	0.97	673

3. Storage Facilities

The City classifies its storage facilities into two categories; they are designated as either reservoirs or tanks. The reservoirs are defined as concrete, subsurface storage facilities; and tanks are defined as steel, above-ground storage facilities.

Table 3.a - Reservoirs in the City of Burbank water system.

Reservoir Name	Capacity (MG)	Construction
Reservoir 1	6.9	Concrete/Sub-surface
Reservoir 2	2.5	Concrete/Sub-surface
Reservoir 3	0.35	Concrete/Sub-surface
Reservoir 4	11.0	Concrete/Sub-surface
Reservoir 5	25.0	Concrete/Sub-surface
Stough Canyon Tank 1	0.38	Steel/Above Ground
McClure Tank	2.0	Steel/Above Ground
Brace Tank 1	0.5	Steel/Above Ground
Brace Tank 2	0.5	Steel/Above Ground
Haven Way Tank 1	0.25	Steel/Above Ground
Haven Way Tank 2	0.25	Steel/Above Ground
Andover Tank	0.5	Steel/Above Ground
Starlight Tank	0.02	Steel/Above Ground
Bel Aire Tank	0.25	Steel/Above Ground
Twin Tank 1	0.0135	Steel/Above Ground
Twin Tank 2	0.0135	Steel/Above Ground
Via Montana Tank 1	0.25	Steel/Above Ground
Via Montana Tank 2	0.25	Steel/Above Ground
Paseo Redondo Tank	0.24	Steel/Above Ground
Tank 1300 (Lamer)	0.95	Concrete/Sub-surface
Tank 1415 (Wedgewood)	0.6	Concrete/Sub-surface
Wildwood Tank 1	0.042	Steel/Above Ground

The Division was unable to climb on some of the tanks due to the City's requirements to have personnel equipped with safety harnesses when climbing tanks/reservoirs without a safety cage. The Division asks that the City take photographs of the roof, roof vents, overflow terminous, and water surface for each reservoir/tank that the Division was unable to access. It is requested that the photos be forwarded to the Division. The last dive report should be provided as well so that the interior coating discussion can be reviewed. Below is a list of deficiencies the Division noted at each reservoir/tank site.

Andover

A threaded tap was located on the inlet/outlet pipe. The Division encourages the use of anti-siphon devices on threaded taps. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. The overflow pipe terminus was also partially submerged in soil without a splash pad. A splash pad is required 12-24 inches from the terminus of the overflow pipe. The terminus of the pipe should be raised and a splash pad should be constructed.

The Division requests photographs of the tank roof vents and general roof condition.

Bel Aire
The Division observed water ponding on the roof of the steel tank. The City should inspect and maintain these areas of the roof periodically in order to prevent corrosion from developing in these ponding areas. The screen on the overflow pipe requires a finer screen.

The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir.

Brace 1
A plant was partially obstructing the overflow pipe terminus. This plant should be cleared.
The Division requests photographs of the tank roof vents and general roof condition.

Brace 2
An improvised splash pad consisting of large rocks was observed below the terminus of the overflow pipe. A permanent splash pad should be constructed of concrete or asphalt that is designed to route water away from the base of the reservoirs. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir.

The Division requests photographs of the tank roof vents and general roof condition.

Haven 1
The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir.

The Division requests photographs of the tank roof vents and general roof condition.

Haven 2
The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. Sampling port enclosing should be cleared of foreign debris.
The Division requests photographs of the tank roof vents and general roof condition.

Tank 1300 (Lamer)
The condition of the flap gates on the overflow and drainage pipes were not able to be assessed. The City should inspect these flap gates and forward photographs of them to the Division.

McCloure
The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. A splash pad should be constructed 12 to 24 inches away from the terminus of the overflow pipe terminus.
The Division requests photographs of the tank roof vents and general roof condition.

Montana 1 & 2
The screens the overflow pipes of both tanks require finer screens. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects

from accessing the reservoir. A splash pad should be constructed 12 to 24 inches away from the terminus of the overflow pipe terminus.
The Division requests photographs of the tank roof vents and general roof condition.

Paseo
The Division observed areas of the exterior tank wall paint chipping. In some areas the paint chipping was prevalent in large areas. The City should repaint these areas to prevent corrosion. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. The splash pad is too close to the terminus of the overflow pipe. The terminus should be raised to provide a splash pad clearance of 12 to 24 inches. An air release/vacuum breaker vent next to the reservoir should have 24-mesh screening installed to prevent the pipeline from outside contamination.

The Division requests photographs of the tank roof vents and general roof condition.

Reservoir 1
Reservoir 1 was under reconstruction when the Division visited. The City destroyed the old reservoir and is constructing two new separate reservoirs adjacent to one another. The Division will need to issue a permit amendment to the City for the reconstructed reservoirs.

Reservoir 2
The Reservoir 2 site has a surrounding soil erosion issue. The reservoir overflows through vents on the sidewalls and flows onto a concrete swale that surrounds the reservoir. This swale drains the overflow water and surrounding runoff water offsite. The swale is approximately level with the side overflow vents which makes the reservoir susceptible to outside runoff contamination during a large storm event. At the time of the sanitary survey, there were branches and leaves that had accumulated next to the overflow screens. These leaves should be cleared and a plan, such as blocking the lower portion of the screens, should be developed to address the possibility of outside runoff from entering the reservoir. When inspecting the roof vent screens, the Division noticed a small gap between roof vent screens and their housing. Additional screws or bolts should be installed to securely fasten the screening to the vent housing. The reservoir also has some graffiti present on its sidewalls. The City should ensure its site security is adequate to keep unauthorized personnel from entering the reservoir site.

Reservoir 3
The Division requests photographs of the overflow pipe terminus and the required overflow pipe screening.

Reservoir 4
The reservoir is underground except for the access room which is located at the surface. The only roof vent is located in the access room which does not allow for ideal airflow. The City should explore options to increase airflow into the reservoir. The overflow pipe terminus should be equipped with a flapper valve or be properly screened with 24-mesh non-corrodible screening.

Reservoir 5
The City should verify the overflow pipe routing and take photographs of the overflow pipe screening and terminus. Please forward the photos to the Division.

Starlight
An old cathodic cable was observed. This cable should be removed from the tank if the cable is no longer necessary. The City should also locate and provide photographs to the Division of the overflow piping and terminus. There was also minor corrosion on the bottom of the tank that should be monitored by the City.

Stough
The Division observed that a thrust block to support the inlet/outlet pipe is missing. It is currently being supported by blocks of wood. A permanent thrust block should be installed. The overflow pipe should be downturned and extended to discharge on a splash pad 12 – 24 inches from the ground.

The Division requests photographs of the tank roof vents and general roof condition.

Twin 1 & 2
There is corrosion on the tank and appurtenances. The City should remove the corrosion and repaint these areas. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir.

Wedgewood
The City should verify the condition of the overflow flapper valve.

Wildwood
An air release/breaker vent is missing mesh screening. The Division recommends a 24-mesh non corrodible screen be used.

Recycled Water Tanks
The City has recycled water tanks connected to a separate recycled water system. The recycled water and drinking water systems are separated except in cases where the City uses drinking water to supplement the recycled water supply. In these cases the City uses an air gap separation as required by Title 22, California Code of Regulations. The Division only inspected the Stough Canyon Tank 2 recycled water tank, as the focus of this inspection was to document the sanitary condition of the drinking water system. The tank was in fair/good condition.

4. Adequacy of Supply

The water system's capacity must be evaluated in order to ensure the system is capable of meeting the demands of the distribution system. In order to evaluate the system, the greatest Maximum Daily Demand (MDD) from the last ten years must be utilized. When MDD is not reported in the annual report, it must be calculated from Maximum Month usage records using a peaking factor as dictated in Section 64554 of Title 22, California Water Code. In Table 4.a, the reported Maximum water usage records, MDD and calculated MDD's have been summarized.

Table 4.a. A summary of peak Groundwater (GW) and Purchased water (PW) usage and Maximum Daily Demands.

Year	Peak Monthly GW & PW (MG)	Month Occurred	Maximum Daily Demand (MG) - Reported	Maximum Daily Demand (MG) - Calculated
2012	516	August	23.2	
2011	550	August	22.7	
2010	597	August	25.0	
2009	653	July	23.9*	32.65
2008	722	August	29.5	
2007	786.5		30.9	
2006	787.1	July	29.07**	39.36
2005	784.8	August	34	
2004	780	July	**40.6**	
2003			***	

*This number is an approximation. The peak groundwater day and peak purchased water day occurred on, and was reported as, two separate days. This number (23.9) is the combination of both these days.
**Only groundwater maximum daily demand was reported.
***No report on file.

The greatest MDD reported was 40.6 MG in 2004. The MDD was calculated for years where the Company did not report MDD. The highest calculated MDD was 39.36 MG in 2006. The reported MDD of 40.6 MG in 2004 is greater, therefore 40.6 MGD will be used in order to determine MDD and PHD compliance. The MDD is used to calculate the peak hourly demand (PHD) using a 1.5 peaking factor.

$$PHD = MDD(MGD) \times \frac{1\,day}{24\,hours} = 40.6MGD \times \left(\frac{1\,day}{24\,hours}\right) = 1.69\ MGH\ (million\ gallons\ an\ hour)$$

Calculating PHD over four hours

$$PHD_{4\,hours} = 4 \times PHD \times 1.5 = 4 \times 1.69 \times 1.5 = \mathbf{10.14\ MG}$$

System Capacity

The capacity of the system must be able to meet MDD and PHD over 4 hours. In order to simplify calculations, the reservoirs are considered to be capable of discharging their volume over the course of a day. By summing the capacities of the City of Burbank's wells, reservoirs and interconnections, the total system capacity may be calculated. Although the City's VO wells have their individual capacities, they feed into the BOU which has a 9,000 gpm capacity. Therefore when considering the City's well capacities, the Division will use the capacity of the BOU. The capacity of the Company's water system has been tabulated in Table 4.b.

Table 4.b. A summary of wells, reservoirs and interconnections in the City of Burbank system.		
WELL NAME	**CAPACITY (MGD)**	**CAPACITY (GPM)**
VO-1	2.16	1,500
VO-2	2.3	1,600
VO-3	2.16	1,500
VO-4	2.45	1,700
VO-5	2.74	1,900
VO-6	3.31	2,300
VO-7	2.74	1,900
VO-8	2.16	1,500
TOTAL	20.02	13,900
BOU Treatment Capacity*	**12.96**	**9,000**
*BOU can only treat 9,000 gpm, therefore well capacity is limited to 9,000 gpm.		
RESERVOIR	**CAPACITY (MGD)**	**CAPACITY (GPM)**
Reservoir 1	6.9	4,792
Reservoir 2	2.5	1,736
Reservoir 3	0.35	243
Reservoir 4	11	7,639
Reservoir 5	25	17,361
Stough Canyon Tank 1	0.38	264
McClure Tank	2	1,389
Brace Tank 1	0.5	347
Brace Tank 2	0.5	347
Haven Way Tank 1	0.25	174
Haven Way Tank 2	0.25	174
Andover Tank	0.5	347
Starlight Tank	0.02	14
Bel Aire Tank	0.25	174
Twin Tank 1	0.0135	9
Twin Tank 2	0.0135	9
Via Montana Tank 1	0.25	174
Via Montana Tank 2	0.25	174
Paseo Redondo Tank	0.24	167
Tank 1300 (Lamer)	0.95	660
Tank 1415 (Wedgewood)	0.6	417
Wildwood Tank 1	0.042	29
Wildwood Tank 2	0.042	29
TOTAL	**52.80**	**36,667**
INTERCONNECTION	**CAPACITY (MGD)**	**CAPACITY (GPM)**
MWD B-1	19.44	13,500
MWD B-2	9.65	6,700
MWD B-3	6.48	4,500
MWD B-4	12.96	9,000
MWD B-5	25.92	18,000
TOTAL	**74.45**	**51,700**
	CAPACITY (MGD)	**CAPACITY (GPM)**
SUM TOTAL	**140.21**	**97,367**

The capacity of the City of Burbank water system is **140.21 MGD**. The PHD that the City is capable of fulfilling over four hours will be calculated from this this system capacity.

$$140.21\ MGD = 5.84\ MGH$$
$$PHD_{4\ hours} = 5.84\ MGH \times 4\ hours = \mathbf{23.37\ MG}$$

Comparison
The system should meet both MDD and PHD over four hours. Table 4.c shows that the City can meet MDD and PHD over four hours.

Table 4.c. Capacity requirements of the City of Burbank system.

	Required (MG)	System Capacity (MG)	Requirement Satisfied
MDD	40.6	140.21	Yes
$PHD_{4\ hours}$	10.14	23.37	Yes

The City of Burbank water system can adequately meet MDD and PHD over four hours.

5. Distribution System

5.1 Booster Stations

The City of Burbank water system has seventeen booster stations throughout the distribution system. The pumps operate according to customer demand. Table 5.a summarizes the booster pumps and their pumping capacities.

Table 5.a - City of Burbank Booster Stations		
Pump Station Name	**Number of Pumps**	**Capacity (gpm)**
Sunset Canyon	1	20
Wildwood 1	2	200
Wildwood 2	1	35
Walnut	2	150
Palm Avenue	1	1,000
	2	1,100
	1	1,125
Valley	2	4,000
	2	6,000
Stough	1	200
	1	500
MWD B-1	2	5,000
MWD B-2	2	2,000
Lake Street GAC	1	1,700
	1	2,000
Reservoir #5	1	500
	1	700
McClure	3	400
Groton	1	130
Via Montana	2	405
Bel Aire	1	200
Haven Way	2	300
Wedgewood	2	125

The Division inspected the City's booster stations as part of the sanitary survey. Overall the pumping stations were in good condition and their enclosures were clean and well kept. The following is a list of minor deficiencies observed by the Division at each booster station.

Sunset Canyon
The air release/vacuum breaker should be screened and downturned.

Wildwood 1
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent.

Walnut
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the

air release/vacuum breaker vent and down turning the vent. The Division observed some corrosion on the pumps and piping. The City should sand down the corrosion and repaint the affected areas.

Palm Avenue
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. A hose was connected to a threaded tap on the pump. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Valley
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Stough
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent.

MWD B-1
A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

MWD B-2
A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Reservoir #5
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. The pump packing was leaking during the inspection. The City should replace the packing and address the corrosion in the leakage area.

Via Montana
The Division observed some corrosion on the pumps and piping. The City should sand down the corrosion and repaint the affected areas.

Bel Aire
A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Haven Way
The Division observed some corrosion on the pumps and piping.

5.2 Treatment

5.2.1 Burbank Operating Unit

Groundwater pumped by the VO wells is pumped to the BOU. This water has very high concentrations of TCE, PCE, and 1,2,3-TCP. Carbon tetrachloride (CTC), 1,1-dichlorethylene (1,1 DCE) and cis-1,2-dichloroethylene have also been detected in these wells. Water is pumped up two air stripping towers where water trickles down as air blowers pump air to strip contaminants from the water. This air is treated further by gas phase granular activated carbon before being released into the atmosphere. Air stripping removes the TCE and PCE from the water. After water passes through the air stripping towers, the water enters liquid phase granular activated carbon vessels to treat any remaining VOC's from the air stripping process. In particular it treats 1,2,3-TCP which is not treatable by air stripping. After passing through the liquid phase granular activated carbon, the water is pumped to the Valley Forebay facility. Graphs displaying raw water values of TCE, PCE, CTC , 1,1 DCE and 1,2,3-TCP may be viewed in Appendix A. After treatment at the BOU, all values for chemicals detected are non-detectable for the effluent water.

5.2.2 Disinfection

The City uses chloramines to disinfect its water. After water is treated at the BOU, the water is directed to the Valley Forebay. Prior to entering the forebay, the water is injected with a chlorine solution that is generated from chlorine gas and treated water. As water exits the forebay, it is injected with an ammonia solution generated from ammonia gas and treated water. This process creates chloramines to disinfect the water and allows the City to mix BOU water with MWD water and have matching, compatible disinfectants.

5.2.3 Blending

The City uses blending treatment in order to lower nitrate concentrations originating from the City's VO wells, and to comply with a self-imposed chromium-6^+ limit. When originally permitted, the BOU wells would exceed the nitrate MCL periodically. Recent data show the combined VO well flow has not been exceeding the MCL for nitrates, however nitrate levels remain elevated. After the water passes through the Valley Forebay, and is injected with ammonia solution, the water is routed to the Valley Pumping Station. The water passes through the Valley booster pumps and is then blended with MWD water with static in-line mixers before being pumped into the City's distribution system. A final MCL for chromium-6^+ was determined by the Division and goes into effect January 1, 2015. The new MCL for chromium-6^+ is 10 µg/L. Prior to this date, water systems are required to sample their water sources for chromium-6^+ which the City has already completed. In the interim, the City complies with a self-imposed MCL of 5 µg/L using blending as a method of treatment. The Division is currently reviewing its impaired sources policy, and the possibility remains that the Division may hold the City to a lower chromium-6^+ concentration level than the 10 µg/L MCL going into effect January 1, 2015.

6. Water Quality Monitoring

6.1 Source Monitoring

6.1.1 Coliform Monitoring

The City samples their wells for total coliforms once a month. The City does have the ability to utilize a well that comes up total coliform positive because 4-log virus inactivation is provided. However, the use of such wells must be evaluated on a case by case basis. In particular, increased monitoring

with MPN and HPC data need to be evaluated along with any possible explanation for the total coliform positive.
The Groundwater Rule (GWR) was implemented December 1, 2009. The rule requires that water sources be sampled (triggered monitoring) for fecal coliform if total coliform is detected in the distribution system, or as an alternative, 4-log virus inactivation treatment can be provided in lieu of triggered monitoring. The City has opted to demonstrate that its groundwater receives 4-log virus inactivation. The City provides monthly reports showing that 4-log virus inactivation treatment is achieved on a daily basis.

6.1.2 General Mineral & Secondary Standards

The City is required to take General Mineral and Secondary Standard samples every three years. The City is currently in compliance with its General Mineral monitoring and Secondary Standard monitoring.

Table 6.a - City of Burbank's General Mineral Compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	1/2/2013	Yes	Every Three Years	1/2/2016
VO-2	1/2/2013	Yes	Every Three Years	1/2/2016
VO-3	1/2/2013	Yes	Every Three Years	1/2/2016
VO-4	1/2/2013	Yes	Every Three Years	1/2/2016
VO-5	1/2/2013	Yes	Every Three Years	1/2/2016
VO-6	1/2/2013	Yes	Every Three Years	1/2/2016
VO-7	1/2/2013	Yes	Every Three Years	1/2/2016
VO-8	1/2/2013	Yes	Every Three Years	1/2/2016

Table 6.b - City of Burbank's Secondary Standards compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	4/2/2013	Yes	Every Three Years	4/2/2016
VO-2	4/2/2013	Yes	Every Three Years	4/3/2016
VO-3	4/3/2013	Yes	Every Three Years	4/3/2016
VO-4	4/3/2013	Yes	Every Three Years	4/3/2016
VO-5	4/2/2013	Yes	Every Three Years	4/2/2016
VO-6	4/2/2013	Yes	Every Three Years	4/2/2016
VO-7	4/3/2013	Yes	Every Three Years	4/3/2016
VO-8	4/2/2013	Yes	Every Three Years	4/2/2016

6.1.3 Inorganics

The Company is required to monitor its active wells for inorganics every three years. Nitrate, Nitrite and Perchlorate may have different frequencies depending on the vulnerability of the sources and the last reading of each constituent. Tables 6.c – 6.f provide an overview of the Company's inorganic monitoring and compliance. Information in these tables is as of November 3, 2014. The Division's database can experience upload delays. If a monitoring deadline has passed, the City did not necessarily miss a sample.

Table 6.c – City of Burbank's Inorganics compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	4/2/2014	Yes	Every Three Years	4/2/2017
VO-2	4/7/2014	Yes	Every Three Years	4/7/2017
VO-3	4/2/2014	Yes	Every Three Years	4/2/2017
VO-4	4/1/2014	Yes	Every Three Years	4/1/2017
VO-5	4/2/2014	Yes	Every Three Years	4/2/2017
VO-6	4/1/2014	Yes	Every Three Years	4/1/2017
VO-7	4/1/2014	Yes	Every Three Years	4/1/2017
VO-8	4/1/2014	Yes	Every Three Years	4/1/2017

Table 6.d - City of Burbank's Nitrate compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	6/2/2014	Yes. Greater than ½ the MCL	Quarterly	9/2/2014
VO-2	6/2/2014	Yes. Greater than ½ the MCL	Quarterly	9/2/2014
VO-3	6/3/2014	Yes. Greater than ½ the MCL	Quarterly	9/3/2014
VO-4	6/3/2014	Yes. Greater than ½ the MCL	Quarterly	9/3/2014
VO-5	6/2/2014	Yes. Greater than ½ the MCL	Quarterly	9/2/2014
VO-6	6/3/2014	Yes. Greater than ½ the MCL	Quarterly	9/3/2014
VO-7	6/3/2014	Yes. Greater than ½ the MCL	Quarterly	9/5/2014
VO-8	6/2/2014	Yes. Greater than ½ the MCL	Quarterly	9/2/2014

Table 6.e - City of Burbank's Nitrite compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	6/2/2014	Yes. Less than ½ the MCL	Every Three Years	9/2/2017
VO-2	6/2/2014	Yes. Less than ½ the MCL	Every Three Years	9/2/2017
VO-3	6/3/2014	Yes. Less than ½ the MCL	Every Three Years	9/3/2017
VO-4	6/3/2014	Yes. Less than ½ the MCL	Every Three Years	9/3/2017
VO-5	6/2/2014	Yes. Less than ½ the MCL	Every Three Years	9/2/2017
VO-6	6/3/2014	Yes. Less than ½ the MCL	Every Three Years	9/3/2017
VO-7	6/3/2014	Yes. Less than ½ the MCL	Every Three Years	9/5/2017
VO-8	6/2/2014	Yes. Less than ½ the MCL	Every Three Years	9/2/2017

Table 6.f - City of Burbank's Perchlorate compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	4/2/2014	Yes	Annually	4/2/2015
VO-2	4/7/2014	Yes	Annually	4/7/2015
VO-3	4/2/2014	Yes	Annually	4/2/2015
VO-4	4/1/2014	Yes	Annually	4/1/2015
VO-5	4/2/2014	Yes	Annually	4/2/2015
VO-6	4/1/2014	Yes	Annually	4/1/2015

VO-7	4/2/2014	Yes	Annually	4/2/2015
VO-8	4/1/2014	Yes	Annually	4/1/2015

6.1.4 Volatile Organics (VOC)

The City samples their VO groundwater wells monthly for VOC's. Table 6.g provides an overview of the Company's VOC monitoring and compliance.

Table 6.g - City of Burbank's Volatile Organic Chemical compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	6/2/2014	Yes	Monthly	7/2/2014
VO-2	6/2/2014	Yes	Monthly	7/2/2014
VO-3	6/3/2014	Yes	Monthly	7/3/2014
VO-4	6/3/2014	Yes	Monthly	7/3/2014
VO-5	6/2/2014	Yes	Monthly	7/2/2014
VO-6	6/3/2014	Yes	Monthly	7/3/2014
VO-7	6/3/2014	Yes	Monthly	7/3/2014
VO-8	6/2/2014	Yes	Monthly	7/2/2014

6.1.5 Regulated Synthetic Organic Chemicals (SOC)

The City samples their VO groundwater wells over two quarters every three years. Table 6.h provides an overview of the Company's SOC monitoring and compliance.

Table 6.h - City of Burbank's Synthetic Organic Chemical compliance.

Well	Last Sample	In Compliance	Monitoring Frequency	Next Monitoring Date
VO-1	4/2/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-2	4/7/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-3	4/2/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-4	4/1/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-5	4/2/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-6	4/1/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-7	4/2/2014	Yes	Two quarters every 3 years	7/2014-12/2014
VO-8	4/1/2014	Yes	Two quarters every 3 years	7/2014-12/2014

6.1.6 Radiologicals

The Company has completed initial monitoring for Radionuclides for their active groundwater wells. A monitoring frequency was issued to each well in the system according to each wells' results. A well using the screening method for radiological compliance is tested for its Gross Alpha particle activity

(GA) and its counting error (CE). Uranium monitoring may be triggered depending on the results of GA and its CE. Radium 226 & 228 monitoring may be triggered depending on the results of GA, CE and Uranium.

- Uranium monitoring is triggered when the GA plus 0.84 times the CE exceeds 5 pCi/L (pico-Curies per Liter).

  $$Uranium\ monitoring\ is\ triggered\ when\ (GA + 0.84 \times CE) > 5$$

- Radium 226 and Radium 228 monitoring is triggered when GA plus 0.84 times the counting error minus Uranium exceeds 5 pCi/L.

  $$Radium\ 226\ \&\ 228\ monitoring\ is\ triggered\ when$$
  $$[GA + (0.84 \times CE) - Uranium] > 5$$

Monitoring frequencies for each radionuclide is determined by the following conditions:

- If the radionuclide result is less than the detection limits for purposes of reporting (DLR), then the next sample will be required in nine years.
- If the radionuclide result is greater than the DLR but less than half the Maximum Contaminant Level (MCL), the next sample will be required in six years.
- If the radionuclide result is greater than half the MCL but less than the MCL, the next sample will be required in three years.

Table 6.h below summarizes the MCL's and DLR's for each radionuclide. Table 6.i provides an overview of City's radionuclide sampling frequencies.

Table 6.i. Radionuclide DLR's and MCL's.

Radionuclide	DLR (pCi/L)	MCL (pCi/L)
Gross Alpha	3	15
Uranium	1	20
Ra-226 + Ra-228	1 each	5
*pCi/L = pico-Curies per liter		

Table 6.j – The City of Burbank's radionuclide sampling frequencies.

VO-1	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/2/2014	6 Years	4/2020
	Uranium	4/2/2014	3 Years	4/2017
	Radium 226	4/2/2014	9 Years	4/2023
	Radium 228	4/2/2014	9 Years	4/2023
VO-2	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/7/2014	3 Years	4/2017
	Uranium	4/7/2014	3 Years	4/2017
	Radium 226	4/7/2014	9 Years	4/2023
	Radium 228	4/7/2014	9 Years	4/2023
VO-3	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/2/2014	3 Years	4/2017
	Uranium	4/2/2014	3 Years	4/2017
	Radium 226	4/2/2014	9 Years	4/2023
	Radium 228	4/2/2014	9 Years	4/2023
VO-4	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/1/2014	3 Years	4/2017
	Uranium	4/1/2014	3 Years	4/2017
	Radium 226	4/1/2014	9 Years	4/2023
	Radium 228	4/1/2014	9 Years	4/2023
VO-5	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/2/2014	6 Years	4/2020
	Uranium	4/2/2014	3 Years	4/2017
	Radium 226	4/2/2014	9 Years	4/2023
	Radium 228	4/2/2014	9 Years	4/2023
VO-6	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/1/2014	3 Years	4/2017
	Uranium	4/1/2014	3 Years	4/2017
	Radium 226	4/1/2014	9 Years	4/2023
	Radium 228	4/1/2014	9 Years	4/2023
VO-7	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/2/2014	3 Years	4/2017
	Uranium	4/2/2014	3 Years	4/2017
	Radium 226	4/2/2014	6 Years	4/2017
	Radium 228	4/2/2014	6 Years	4/2017
VO-8	Radionuclide	Last Sample	Monitoring Frequency	Next Sample Due
	Gross Alpha	4/1/2014	3 Years	4/2017
	Uranium	4/1/2014	3 Years	4/2017
	Radium 226	4/1/2014	9 Years	4/2023
	Radium 228	4/1/2014	9 Years	4/2023

6.1.7 Unregulated Contaminants

The City has taken samples of unregulated samples in the past. A notable constituent that has been detected in the City's wells is 1,4-dioxane. 1,4-dioxane is considered an emerging contaminant with a notification level (NL) of 1 µg/L. When a source is detected at or above the NL, the Division recommends the water system begin monthly monitoring and notify their customers and governing body. Due to groundwater conditions, the Division recommends that the City begin monitoring 1,4-dioxane monthly at its sources. Table 6.k lists recent 1,4-dioxane detections at the City's wells.

Table 6.k – The City of Burbank's recent 1,4-dioxane detections.

Well	Concentration (µg/L)	Sampling Date
VO-1	1.3	4/3/2012
VO-3	3.0	4/3/2013
	2.4	4/2/2014
VO-6	1.1	4/19/2011
	1.0	5/1/2012
	1.5	4/2/2013
	1.4	4/2/2014
VO-7	1.3	4/3/2012
	1.8	4/3/2013
	1.7	4/2/2014

Another unregulated contaminant found in the City's wells is 1,2,3-TCP. This contaminant has a NL of 0.005 µg/L. 1,2,3-TCP levels are approximately 20 times the NL. However, the BOU's GAC beds, consistently treat 1,2,3-TCP to levels below the NL.

6.2 Distribution System Monitoring

6.2.1 Bacteriological Monitoring

The City of Burbank currently serves a population of 104,427 residents with 26,435 active service connections according to the City's 2012 Annual Report. According to this information the system must take a minimum of twenty-five coliform samples per week for the distribution system. Currently the City takes twenty-six samples per week. This amounts to 104 to 130 samples a month which is more than what is required of the system. The current Bacteriological Sample Siting Plan (BSSP) was filed in 2006. A BSSP is required to be updated every ten years or when a BSSP no longer ensures representative monitoring of the water system.

6.2.2 Disinfection Byproduct Rule

The City currently samples for disinfection byproducts under the Stage 2 Disinfection Byproduct Rule (DBPR). The City measures chlorine residuals whenever a bacteriological sample is taken and the results are submitted to the Division monthly. Currently the City samples for Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5). Water systems comply with the Stage 2 DBPR by keeping their Locational Running Annual Averages (LRAA) below the TTHM and HAA5 MCL's. A LRAA is calculated by taking one sampling site, and averaging the current quarter's concentrations with the three previous quarters. The City has consistently complied with the Stage 2 DBPR by sampling and submitting their reports on time as well as maintaining LRAA's under the TTHM and HAA5 MCL's.

6.2.3 Lead and Copper Monitoring

The Company has maintained its Lead and Copper sampling schedule for the distribution system. The Company is required to sample one hundred sites for standard tap sampling but qualifies for reduced tap sampling at fifty sites. The system is currently required to sample triennially and last sampled for Lead and Copper in June of 2011. The 90th percentile for Lead was Non-Detect and the 90th percentile for Copper was 0.2 mg/L. Table 6.I summarizes the City's last two rounds of Lead and Copper sampling. The City will be required to sample for Lead and Copper in the summer of 2014.

Table 6.I – The City of Burbank's past Lead and Copper sampling results.

Date	Number of Samples	Lead 90th Percentile (mg/L)	Copper 90th Percentile (mg/L)
June 2011	50	ND	0.18
July 2008	55	0.005	0.23

7. Operation and Maintenance

7.1 Organization and Personnel

The City of Burbank distribution system is classified as a Distribution Operator 5 system. The chief operator must possess at a minimum, a Distribution Operator 5 certification. The shift operators must possess at a minimum, a Distribution Operator 3 certification. The Company currently meets the distribution system criteria.

The City of Burbank is only responsible for one treatment facility, the Valley Pumping Facility. This plant blends MWD water with BOU effluent and discharges into the distribution system. The BOU is operated by APT Water Services as agreed upon between the City and Lockheed Martin, and is currently classified as a Treatment Operator 4 (T4) treatment facility. The Valley Pumping Facility is classified as a T3 facility. According to this classification, the City is required to have a chief operator with a minimum grade of a T3 treatment facility operator certificate and shift operators with a minimum grade of a T2 treatment facility operator certificate.

7.2 Cross Connection Control Program

According to the City's 2012 Annual Drinking Water Report, the City has 1,758 backflow assemblies on service connections or meters in its distribution system. A total of 1,690 assemblies were tested in 2012. Of those tested, 171 failed but were later repaired. The City's Cross Connection Control Program Coordinator is Steve Sinardi. He is an AWWA Cross-Connection Specialist. The last cross-connection control survey completed for the system was 11/9/2012 which can be viewed in Appendix B.

7.3 Valve Maintenance Program

There are a total of 6,054 valves ranging in size from 2 inches to 30 inches in the City of Burbank distribution system. A total of 3,036 valves were exercised in 2012 according to the 2012 annual report. The City exercises their valves biennially.

7.4 Flushing Program

The City has a total of 116 dead ends in their system. Sixty-nine of the dead ends have blow off valves. In 2012 the Company flushed 104 dead ends. The Company's goal is to flush their dead ends annually or as needed in order to maintain good water quality.

7.5 System Problems and Customer Complaints

A record of system problems has been summarized in Table 7.a for the last six years. The information provided has been compiled from the Company's annual reports for the last six years.

Table 7.a - A summary of Burbank's service problems.

Problem	2006	2007	2008	2009	2010	2011	2012
Service Connection Breaks/Leaks	536	762	595	2	5	5	11
Main Break/Leaks	17	2	8	13	10	3	10
Water Outages	9	7	2	7	8	0	0
Boil Water Orders	0	0	0	0	0	0	0

The City should provide the Division with an explanation about the sharp decline of service connection breaks/leaks in between 2008 and 2009.

A record of customer complaints has been summarized in Table 7.b for the last six years. These records have been compiled from the City's annual reports to the Division.

Table 7.b - A summary of customer complaints of the City of Burbank system.

	2006	2007	2008	2009	2010	2011	2012
Taste and Odor	10	21	18	0*	12	20	18
Color	2	4	0	6	4	4	9
Turbidity	0	7	7	6	10	4	2
Worms and Other Visible Organisms	0	0	0	0	0	0	0
Pressure (High or Low)	35	245	16	35	35	1	0
Illnesses (Waterborne)	0	0	0	0	0	0	0
Other	14	13	19	47	41	32	37
*In the 2009 annual report, "Taste and Odor" complaints are not requested by the Division.							

7.6 Consumer Confidence Report

The Division has received the City's 2013 Water Quality Report (Consumer Confidence Report). The City's 2013 Consumer Confidence Report was received by the Division and distributed to its customers by July 1, 2014.

7.7 Annual Report to the Drinking Water Program

The Division received the City's 2013 Annual Report to the Drinking Water Program on April 15, 2014. The City has delivered their annual reports on time consistently.

7.8 Emergency Notification Plan

The Division received the City's 2013 Water Quality Emergency Notification Plan on March 17, 2014.

7.9 Emergency Response Plan

The emergency response plan that the Division has on file is outdated. According to the 2012 annual report, the City's current plan is from 2003.

The City's Emergency Response Plan should be reviewed and updated, with a copy forwarded to the Division.

7.10 Emergency Chlorination Plan

The City's emergency chlorination plan is adequate and addresses the emergency chlorination needs of the City.

8.0 System Appraisal

The City is currently able to provide a continuous supply of safe, wholesome, and potable water to its customers. It appears that the City relies on MWD for more than 50 percent of its water supply; however, because of the contamination in the underlying aquifer there seems to be no other alternative than the present situation. Developing connections with neighboring water systems (City of Los Angeles and City of Glendale) would not be feasible, because these water systems are as equally restricted in the use of their own water as well (they rely heavily on MWD too). As long as there are no emergencies which would incapacitate the City's current set-up, then the current set-up will continue to serve water reliably.

During the course of this inspection, the Division compiled a list of items that should be addressed by the City at this time. These items are as follows:

1. Groundwater Wells

The City should put screening on the funnels to keep foreign debris from entering the casings via the return lines. The City should also develop a plan that allows each well to pump-to-waste. Currently, one VO well cannot be pumped-to-waste without wasting water from the other VO wells.

VO-1

The Division found a fitting on the wellhead that was loose. This fitting should be secured in place to keep foreign debris from entering the well casing.

VO-2

A fitting that is guiding a cable through the wellhead was loose and covered with aluminum foil for flexibility. The fitting should fit snuggly and foil should not be used as sealing device as it can tear or be punctured and create a pathway for debris to enter the casing.

VO-3

A fitting that is guiding a cable through the wellhead was loose and covered with aluminum foil for flexibility. The fitting should fit snuggly and foil should not be used as it

can tear or be punctured and create a pathway for debris to enter the casing. An internally threaded valve was found on the discharge. If this valve does not serve any particular purpose, the City should remove it. The Division also noticed that guiding bolts on the wellhead were not properly fastened down. The City should tighten the lug nuts on the wellhead properly.

VO-4
The Division observed water had accumulated in the vault. The operators informed the Division that the water was caused by seepage from a nearby carwash. The City should investigate the cause and mitigate it accordingly.

Caps and fittings on the wellhead were covered with aluminum foil as protection. The City should replace these caps and fittings so that aluminum foil will not be required as a method of protection.

Threaded fittings were present on several of the well lines. There should not be any threaded lines connected to the well discharge lines. The City should remove these fittings, file the threads down or fit them with anti-siphon fittings. A coupling connection was present as well.

A "No Parking" sign is present on the sampling station cabinet above the well, but a vehicle was parked in the stall adjacent to the cabinet which made access to the cabinet difficult. The City should speak with property owners about cross-hatching the parking space or installing a post to keep vehicles from blocking access to the sampling station.

VO-5
There was oil residue from the cathodic protection system on the caps and fittings on the wellhead. A layer of dust was present as well. The City should clean the surface of the wellhead and mitigate the oil residue. A cap on the wellhead was constructed of aluminum foil. This does not adequately protect the well casing. A permanent cap should be installed in lieu of an aluminum foil cap. At the sampling point, there were pieces of loose rust in the sampling return line. The pieces of rust should be cleared from the return line.

VO-6
There was condensation present in vault. At the sampling cabinet, the Division observed that there was paint clogging the vault vent screen. This may be the cause of the condensation buildup in the well vault below. The vault vent should be cleared of obstructions. There was also a threaded tap on the discharge line that should be removed, have its threads shaved down or be equipped with an anti-siphon device. Oil buildup on the wellhead should be cleaned off and the cause investigated.

The VO-6 vault collects drainage water in a different area of the vault compared to the other VO wells. The drainage pipe maintains its clearance of the ground with some wood wedges that have been placed under the pipe opening. The City should make the proper modifications to the pipe so that wedges of wood are not needed to maintain ground clearance.

VO-7
Some water was present in the vault and it did not appear to be condensation. There was also rust dust and oil residue present from the cathodic protection system. The City should clean the dust and oil residue and investigate the cause. Lug nuts on well head

should also be tightened. An old wiring connection was present on the wellhead. The City should remove the old wire connection and cap it in order to eliminate the possibility of debris entering the well casing via this connection. The Division observed a portion of the discharge piping that was supported by a temporary stand. This temporary stand should be replaced with a permanent stand or support. The collection funnel in the sampling cabinet is corroding. The City should replace the funnel.

2. Reservoirs

Andover

A threaded tap was located on the inlet/outlet pipe. The Division encourages the use of anti-siphon devices on threaded taps. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. The overflow pipe terminus was also partially submerged in soil without a splash pad. A splash pad is required 12-24 inches from the terminus of the overflow pipe. The terminus of the pipe should be raised and a splash pad should be constructed. The Division requests photographs of the tank roof vents and general roof condition.

Bel Aire

The Division observed water ponding on the roof of the steel tank. The City should inspect and maintain these areas of the roof periodically in order to prevent corrosion from developing in these ponding areas. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir.

Brace 1

A plant was partially obstructing the overflow pipe terminus. This plant should be cleared. The Division requests photographs of the tank roof vents and general roof condition.

Brace 2

An improvised splash pad consisting of large rocks was observed below the terminus of the overflow pipe. A permanent splash pad should be constructed of concrete or asphalt that is designed to route water away from the base of the reservoirs. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. The Division requests photographs of the tank roof vents and general roof condition.

Haven 1

The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. The Division requests photographs of the tank roof vents and general roof condition.

Haven 2

The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. Sampling port enclosing should be cleared of foreign debris. The Division requests photographs of the tank roof vents and general roof condition.

Tank 1300 (Lamer)

The condition of the flap gates on the overflow and drainage pipes were not able to be assessed. The City should inspect these flap gates and forward photographs of them to the Division.

McCloure

The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. A splash pad should be constructed 12 to 24 inches away from the terminus of the overflow pipe terminus. The Division requests photographs of the tank roof vents and general roof condition.

Montana 1 & 2

The screens the overflow pipes of both tanks require finer screens. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. A splash pad should be constructed 12 to 24 inches away from the terminus of the overflow pipe terminus. The Division requests photographs of the tank roof vents and general roof condition.

Paseo

The Division observed areas of the exterior tank wall paint chipping. In some areas the paint chipping was prevalent in large areas. The City should repaint these areas to prevent corrosion. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir. The splash pad is too close to the terminus of the overflow pipe. The terminus should be raised to provide a splash pad clearance of 12 to 24 inches. An air release/vacuum breaker vent next to the reservoir should have 24-mesh screening installed to prevent the pipeline from outside contamination. The Division requests photographs of the tank roof vents and general roof condition.

Reservoir 1

Reservoir 1 was under reconstruction when the Division visited. The City destroyed the old reservoir and is constructing two new separate reservoirs adjacent to one another. The Division will need to issue a permit amendment to the City for the reconstructed reservoirs.

Reservoir 2

The Reservoir 2 site has a surrounding soil erosion issue. The reservoir overflows through vents on the sidewalls and flows onto a concrete swale that surrounds the reservoir. This swale drains the overflow water and surrounding runoff water offsite. The swale is approximately level with the side overflow vents which makes the reservoir susceptible to outside runoff contamination during a large storm event. At the time of the sanitary survey, there were branches and leaves that had accumulated next to the overflow screens. These leaves should be cleared and a plan, such as blocking the lower portion of the screens, should be developed to address the possibility of outside runoff from entering the reservoir. When inspecting the roof vent screens, the Division noticed a small gap between roof vent screens and their housing. Additional screws or bolts should be installed to securely fasten the screening to the vent housing. The reservoir also has some graffiti present on its sidewalls. The City should ensure its site security is adequate to keep unauthorized personnel from entering the reservoir site.

Reservoir 3
The Division requests photographs of the overflow pipe terminus and the required overflow pipe screening.

Reservoir 4
The reservoir is underground except for the access room which is located at the surface. The only roof vent is located in the access room which does not allow for ideal airflow. The City should explore options to increase airflow into the reservoir. The overflow pipe terminus should be equipped with a flapper valve or be properly screened with 24-mesh non-corrodible screening.

Reservoir 5
The City should verify the overflow pipe routing and take photographs of the overflow pipe screening and terminus. Please forward the photos to the Division.

Starlight
An old cathodic cable was observed. This cable should be removed from the tank if the cable is no longer necessary. The City should also locate and provide photographs to the Division of the overflow piping and terminus. There was also minor corrosion on the bottom of the tank that should be monitored by the City.

Stough
The Division observed that a thrust block to support the inlet/outlet pipe is missing. It is currently being supported by blocks of wood. A permanent thrust block should be installed. The overflow pipe should be downturned and extended to discharge on a splash pad 12 – 24 inches from the ground. The Division requests photographs of the tank roof vents and general roof condition.

Twin 1 & 2
There is corrosion on the tank and appurtenances. The City should remove the corrosion and repaint these areas. The screen on the overflow pipe requires a finer screen. The Division recommends a 24-mesh non corrodible screen be placed on the overflow to prevent insects from accessing the reservoir.

Wedgewood
The City should verify the condition of the overflow flapper valve.

Wildwood
An air release/breaker vent is missing mesh screening. The Division recommends a 24-mesh non corrodible screen be used.

3. Booster Stations

Sunset Canyon
The air release/vacuum breaker should be screened and downturned.

Wildwood 1
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent.

Walnut
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. The Division observed some corrosion on the pumps and piping. The City should sand down the corrosion and repaint the affected areas.

Palm Avenue
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. A hose was connected to a threaded tap on the pump. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Valley
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Stough
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent.

MWD B-1
A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

MWD B-2
A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Reservoir #5
No screens were present on the air release/vacuum breaker vent. The vent was also not downturned. The Division recommends installing 24-mesh non-corrodible screening on the air release/vacuum breaker vent and down turning the vent. The pump packing was leaking during the inspection. The City should replace the packing and address the corrosion in the leakage area.

Via Montana
The Division observed some corrosion on the pumps and piping. The City should sand down the corrosion and repaint the affected areas.

Bel Aire
A Threaded valve was found on the booster station. The threads should be shaved down or the tap should be equipped with an anti-siphon device.

Haven Way
The Division observed some corrosion on the pumps and piping.

4. Operation and Maintenance

The City's Emergency Response Plan should be reviewed and updated, with a copy forwarded to the Division.